

Anthony S. Kosky

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PERSONAL

- Born: 3rd September 1965, in London, England.
- Nationality: British.
- Marital Status: single.
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EDUCATION

- September 1989 – August 1995:
Dept. of Computer and Information Science, University of Pennsylvania.
PhD. in *Computer Science*. Thesis on “Transforming Databases with Recursive Data Structures”, supervised by Prof. Peter Buneman and Prof. Susan Davidson.
- October 1987 – September 1988:
Dept. of Computing, Imperial College of Science and Technology.
MSc./DIC (Distinction) in *Foundations of Advanced Information Technology*.
Subjects Studied include semantics of programming languages, domain theory, theory of functions, functional programming technology, logic programming, models of concurrent computation.
Dissertation on “Semantics of Object Oriented Programming Languages”, supervised by Prof. Samson Abramsky.
- October 1984 – June 1987:
University of Kent at Canterbury.
BSc. (First Class Honors¹) in *Mathematics*.
Winner of 1987 Rotary and I.M.A. prizes.
Subjects studied include real analysis, complex analysis, numerical and computational mathematics, topology, discrete mathematics, relativity theory, fractal geometry and complex analytic dynamics.

EMPLOYMENT

- September 1997 – Present:
Gene Logic Inc., *Senior Research Scientist*.
Working in *Data-management Systems Division*. Group-leader for development of OPM database integration tools. Responsible for development of multi-database query tools. Also involved in design/specification of the *Object-Protocol Model* (OPM), OPM query-languages and query-translator tools, and numerous other aspects of the OPM project.
- September 1995 – September 1997:

¹ Equivalent of 4.0 GPA in United States university.

Lawrence Berkeley National Laboratory, *Research Scientist*.
Working in the *Information and Computer Science Division, Data Management Research and Development Group*, on the *Object-Protocol Model (OPM)* toolset.

- November 1988 – August 1989:
STC Technology Ltd., Harlow, England. *Software Engineer*.
Working in *Formal Methods Dept.* on *RAISE* (Rigorous Approach to Industrial Software Engineering) project – and ESPRIT funded project. Involved with the implementation of a language based editor and tool set for the *RAISE Specification Language*.

RESEARCH INTERESTS

- Databases: object-oriented databases; multiple heterogeneous database systems; database transformations and constraints; data and schema evolution; semantics of complex data-structures and object-identity; semantics of database programming and query languages; biological and other scientific databases.
- Computational biology; bio-informatics; genetics.

TEACHING EXPERIENCE

- Teaching assistant: University of Pennsylvania.
 - CIS 515 – Logic and Computational Algebra, graduate level;
 - CSE 333 – Logic and Computation, undergraduate level;
 - CIS 550 – Information and Databases, graduate level.
- Presented a number of lectures in all the above courses, and in addition presented lectures in Advanced Databases and Theory of Programming Languages courses.

PROGRAMMING EXPERIENCE

- Languages: Extensive experience from programming large-scale, robust systems in C++ and SML. Experience in programming using AWK and UNIX shell scripts. Some knowledge of C, Prolog, Hope, etc.
- Tools: Experience with various CORBA products (ORBIX and Visibroker); C++ Standard Template Library (STL); version control tools (RCS); Purify; Cornell Synthesizer Generator.

REFERENCES

Available upon request.

PUBLICATIONS

- “Declarative Languages for Advanced Information Technology”, *Journal of Information Technology*, Vol. 3, No. 2, June 1988.
- “A Formal Model for Databases with Applications to Schema Merging”, in *Specification of Database Systems*, Glasgow 1991, Harper and Norrie (eds.).
- “A Basis for Interactive Schema Merging”, (with P. Buneman, S. Davidson and M. VanInwegen), in *Proc. Hawaii International Conference on Systems Sciences*, 1992.
- “Theoretical Aspects of Schema Merging”, (with P. Buneman and S. Davidson), in *Proc. Extending Database Technology (EDBT)*, Vienna, 1992.

- “Facilitating Transformation in a Human Genome Project Database”, (with S. Davidson and B. Eckman), in *Proc. Third International Conference on Information and Knowledge Management (CIKM)*, Gaithersburg, MD, 1994.
- “Observational Distinguishability of Databases with Object Identity”, in *Proc. 5th International Workshop of Database Programming Languages (DBPL5)*, Gubbio, Italy, 1995.
- “Exploring Heterogeneous Molecular Biology Databases in the Context of the Object-Protocol Model”, (with V. M. Markowitz and I. A. Chen), in *Theoretical and Computational Methods in Genome Research*, Suhai, S. (Ed), Plenum Press, 1997.
- “Facilities for Exploring Molecular Biology Databases on the Web: A Comparative Study”, (with V. M. Markowitz, I. A. Chen and E. Szeto), in *Proc. of the Pacific Symposium on Biocomputing*, Hawaii, January 1997.
- “WOL: A Language for Database Transformations and Constraints”, (with S. Davidson), in *Proc. 13th International Conference on Data Engineering (ICDE)*, Birmingham, United Kingdom, 1997.
- “Semantics of Database Transformations”, (with S. Davidson and P. Buneman), in *Semantics in Databases*, Springer Lecture Notes in Computer Science, 1998, Thalheim and Libkin (eds.).
- “Constructing and Maintaining Scientific Database Views” (with I. A. Chen, V. M. Markowitz and E. Szeto), in *Proc. of the 9th International Conference on Scientific and Statistical Database Management*, Olympia, WA, 1997, Hansen and Ioannidis (eds.).
- “Exploring Heterogeneous Biological Databases: Tools and Applications” (with I. A. Chen, V. M. Markowitz, and E. Szeto), in *Proc. of the 6th International Conference on Extending Database Technology (EDBT’98)*, Valencia, Spain, 1998.
- “Advanced Query Mechanisms for Biological Databases” (with I. A. Chen, V. M. Markowitz, E. Szeto and T. Topaloglou), in *Proc. of the 6th International Conference on Intelligent Systems for Molecular Biology (ISMB’98)*, June 1998.

TECHNICAL REPORTS

- “Formal Models For Concurrent Communicating Systems”, (submitted to fulfill requirements for Written Preliminary Exam of University of Pennsylvania PhD. program). Technical report MS-CIS-91-34, University of Pennsylvania, 1991.
- “Modeling and Merging Database Schemas”, Technical Report MS-CIS-91-65, University of Pennsylvania, 1991.
- “Types With Extents: On transforming and querying self-referential data-structures”, Thesis proposal. Technical Report MS-CIS-95-21, University of Pennsylvania, 1995.
- “Effecting Database Transformations Using Morphase”, (with S. Davidson). Technical Report MS-CIS-96-5, University of Pennsylvania, 1996.
- “The OPM Query Translator”, (with I. A. Chen, V. M. Markowitz and E. Szeto). Lawrence Berkeley National Laboratory technical report LBNL-38180, 1996.

- “OPM*QS: The Object-Protocol Model Multidatabase Query System”, (with I. A. Chen, V. M. Markowitz and E. Szeto). Lawrence Berkeley National Laboratory technical report LBNL-38181, 1996.
- “OPM Data Management Tools for CORBA Compliant Environments”, (with I. A. Chen, V. M. Markowitz and E. Szeto). Lawrence Berkeley National Laboratory technical report LBNL-38975, 1996.